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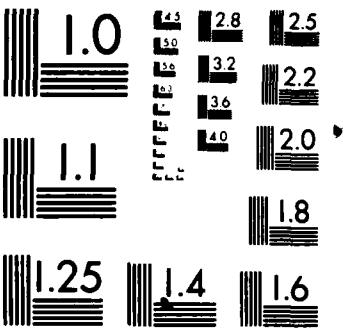


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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This document is a Procurement Specification for the development of a Group Technology Classification and Coding System. Included are: Scope of Work, Statement of Work Detailing Activities, Proposed Schedules, Technical Team Description and Deliverables. This Procurement Specification is for the development of a manual ECACS which will be demonstrated by the contractor.

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Report DAAK10-80-C-0189

FUNDAMENTALS OF A GROUP TECHNOLOGY ELECTRONICS CLASSIFICATION AND CODING SYSTEM

Procurement Specification

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5 April 1982

Final Report

[redacted]

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Prepared for

DEPARTMENT OF THE ARMY
U.S. Army Armament R&D Command
Dover, New Jersey 07801

TABLE OF CONTENTS

Distribution Statement A is correct for this report.
Per Mr. Normand L. Varieur, ARRADCOM

Section 1

INTRODUCTION

Contract No. DAAK10-80-C-0189 was awarded by the Tri-Service Manufacturing Technology Program through the Department of the Army, U.S. Army Armament R&D Command, Dover, New Jersey to the Organization for Industrial Research, Inc. (OIR). The objective of this contract was to develop the fundamentals of a Group Technology Classification and Coding System (ECACS) including a Requirements Definition.

This Procurement Specification is submitted as part of the requirements of Contract No. DAAK10-80-C-0189. Report DAAK10-80-C-0189 "Fundamentals of a Group Technology Electronics Classification and Coding System:

- Summary of Survey Findings
- and Requirements Definition,"

serve as references to the Procurement Specification.

The following document details the requirements and activities necessary for the procurement by the government of a Group Technology Electronics Classification and Coding System.

Section 2

SCOPE OF WORK

The objective of this procurement is to develop a Group Technology Electronics Classification and Coding System including all documentation in support of said system. The ECACS will be a manual system which will be demonstrated by the contractor and be computerized in the future. This procurement will also provide for the development of a Procurement Specification suitable for contract acquisition of the software necessary for the computerization of the ECACS.

Section 3

REQUIREMENTS

Report No. DAAK10-80-C-0189, "Fundamentals of a Group Technology Classification and Coding System: Requirements Definition" must be used as reference documentation by the contractor in developing the Electronics Classification and Coding System. All characteristics for an ECACS which are identified in the Requirements Definition document must be addressed by the contractor in developing the ECACS.

The contractor, together with the appropriate government agency, must identify a development/test site to be used for ECACS development. This test site should be a major electronics manufacturer engaged in all aspects of electronics design, manufacture and test.

Section 4

STATEMENT OF WORK

The following activities are necessary for the development of a comprehensive Group Technology Electronics Classification and Coding System and must be completed by the contractor.

4.1 Task 1 - Feasibility Study

4.1.1 The contractor will visit the selected development/test site and perform a feasibility study. This study will:

- determine suitability of test site for the development of a comprehensive ECACS by reviewing the scope of activities and operations of test site.
- identify the potential applications for an ECACS. Contractor will interview site personnel in design, manufacturing and testing.
- identify areas of potential ROI and estimate the ROI for various applications of an ECACS.

4.1.2 The contractor will prepare a report detailing the findings of the feasibility study.

4.2 Task 2 - Review of Exising Software

4.2.1 The contractor will identify existing software utility programs which can be effectively employed with the ECACS in support of the applications identified in Task 1. A thorough review of software currently available will be performed in order to:

- identify a standardized retrieval program which allows for fast, first line retrieval of data.
- identify data handling programs which will support specific applications (i.e. computer aided process planning).

- identify software communication programs which link data retrieval programs with data handling programs.

- identify standard analysis programs which perform statistical analysis of data for a particular application. Included in this group, must be a program which does statistical analysis for Group Technology applications (i.e. the MIGROUP System).

4.2.2 After all relevant software programs are identified, the contractor will identify any code format and layout criteria necessary to insure compatibility of an ECACS with suitable existing software programs.

4.3 Task 3 - Data Gathering

4.3.1 The contractor will visit the test site, confer with site personnel and gather the following data necessary for later code development efforts. The contractor will:

- select a random sample of at least 2,000 parts (components) plus all support documentation for those parts including layouts and process plans.

- collect all data pertaining to test site standards including documentation of test site standards.

- collect vendor documentation.

4.3.2 The contractor will collect and review all data relating to industry - wide standards and military standards for electronics.

4.3.3 The contractor will review and organize all data, beginning with the selection of the data to be used in code development.

4.4 Task 4 - Initial Code Development

The contractor will perform the following activities in order to develop the initial code structure for an ECACS.

4.4.1 The contractor will review potential applications, existing support software and the results of the data collection activity (Task 4.3) and identify critical characteristics for an ECACS.

4.4.2 The contractor will determine the particular characteristics and information the code should capture.

4.4.3 The contractor will determine the level of detail (for information) to be captured by the code structure.

4.4.4 The contractor will layout and format the initial code structure. This initial structure shall contain:

- a standard section of the ECACS which carries general information which applies to every part;
- a specific section of the ECACS for each of the main functional categories as identified in the Requirements Definition document.

The code will be formated so as to allow for expansion during development and later application.

The initial code structure will have (maximum):

- at least eight digits for the general section;
- and four digits for each specific section.

4.5 Task 5 - Analysis of Initial Code Structure

4.5.1 The contractor will use the initial code structure to code 1,000 randomly selected parts.

4.5.2 The contractor will build an Analysis Database containing necessary "raw data". This database will be analyzed using the MIGROUP Analysis Programs (or equivalent).

4.5.3 The data in the analysis database will be validated for accuracy and appropriate corrections will be made.

4.5.4 The contractor will use the MIGROUP System (or equivalent) to analyze the initial structure of the ECACS in order to:

- research the effectiveness of the ECACS for retrieval of meaningful clusters of raw data. (This will insure the efficiency of the code as the integrating factor for applications databases.)
- research whether the correct balance has been established between compressed data (ECACS) and raw data.
- determine if there is redundancy in the information captured by the digits.
- detemine if the code structure should be expanded. This analysis will identify if the code needs to capture more detail or additional characteristics.

4.6 Task 6 - Refine the Code Structure

Using the results of the analysis of the initial code structure, the contractor will refine the code structure to reflect the necessary changes.

4.7 Task 7 - Analysis of Refined Code Structure

4.7.1 The development of a classification and coding system is an iterative process. The contractor will code an additional 1,000 parts (random selection) using the refined code structure.

4.7.2 The contractor will repeat all the activities delineated in Section 4.5 Task 5 for the refined code structure. This will include:

4.7.3 Increasing the Analysis Database.

4.7.4 Validation of data

4.7.5 Group Technology Analysis of Refined Code Structure

4.8 Task 8 - Finalize the Code Structure

Using the results of the Group Technology Analysis and conferring with test site representatives, the contractor will finalize the code structure for the ECACS.

4.9 Task 9 - Documentation Preparation

The contractor will prepare the following documentation in support of the ECACS:

4.9.1 An ECACS coding manual depicting the layout of the coding system.

4.9.2 A manual containing definitions, examples and explanation for the ECACS. This documentation would support training activities for ECACS.

4.9.3 A color slide presentation depicting the ECACS development project and the ECACS structure. The presentation will include potential applications for ECACS.

4.10 Task 10 - Demonstration

The contractor will prepare a formal demonstration of the ECACS and will demonstrate the code to appropriate government personnel. The number of demonstrations, sites of demonstrations and dates will be mutually agreed upon by the contractor and controlling government agency.

4.11 Task 11 - Final Report

The contractor will prepare and submit a final report at the termination of the contract. This report will include:

- a description of project activities and findings,
- all ECACS support documentation,
- a procurement specification for the software necessary to computerize the ECACS.

4.12 Task 12 - Technical Review Meetings

It will be necessary for the contractor to meet with site personnel and government personnel to periodically review the technical development effort. These review meetings should be held as the conclusion to the following tasks:

Task 1, 2, 3, 4, 5, 6, 7, 8, and 9.

The proposed schedule estimates the timing of these meetings.

4.13 - Deliverables

The contractor shall deliver the following to the controlling government agency in order to fulfill contract requirements.

- Report of the Feasibility Study performed at the test site.
- Interim Technical Progress Reports - delivered bi-monthly.
- Final Project Report including:
  - ECACS Coding Manual
  - ECACS Definitions, Explanations Manual
  - Color-Slide Presentation detailing ECACS development, structure and applications.
  - Procurement Specification for the software necessary to computerize the ECACS.

Section 5

TECHNICAL TEAM

The contractor shall provide a Technical Project Team consisting of at least the following:

- Group Technology Specialist
- Training Development Specialist
- Electronic Engineering Specialist
- Coding Specialist

Additionally, the following personnel will be needed to complement the contractor's technical team.

- Test Site Project Manager
- Test Site Professional Experts (as needed)
- Appropriate Government Personnel

Section 6

SCHEDULE

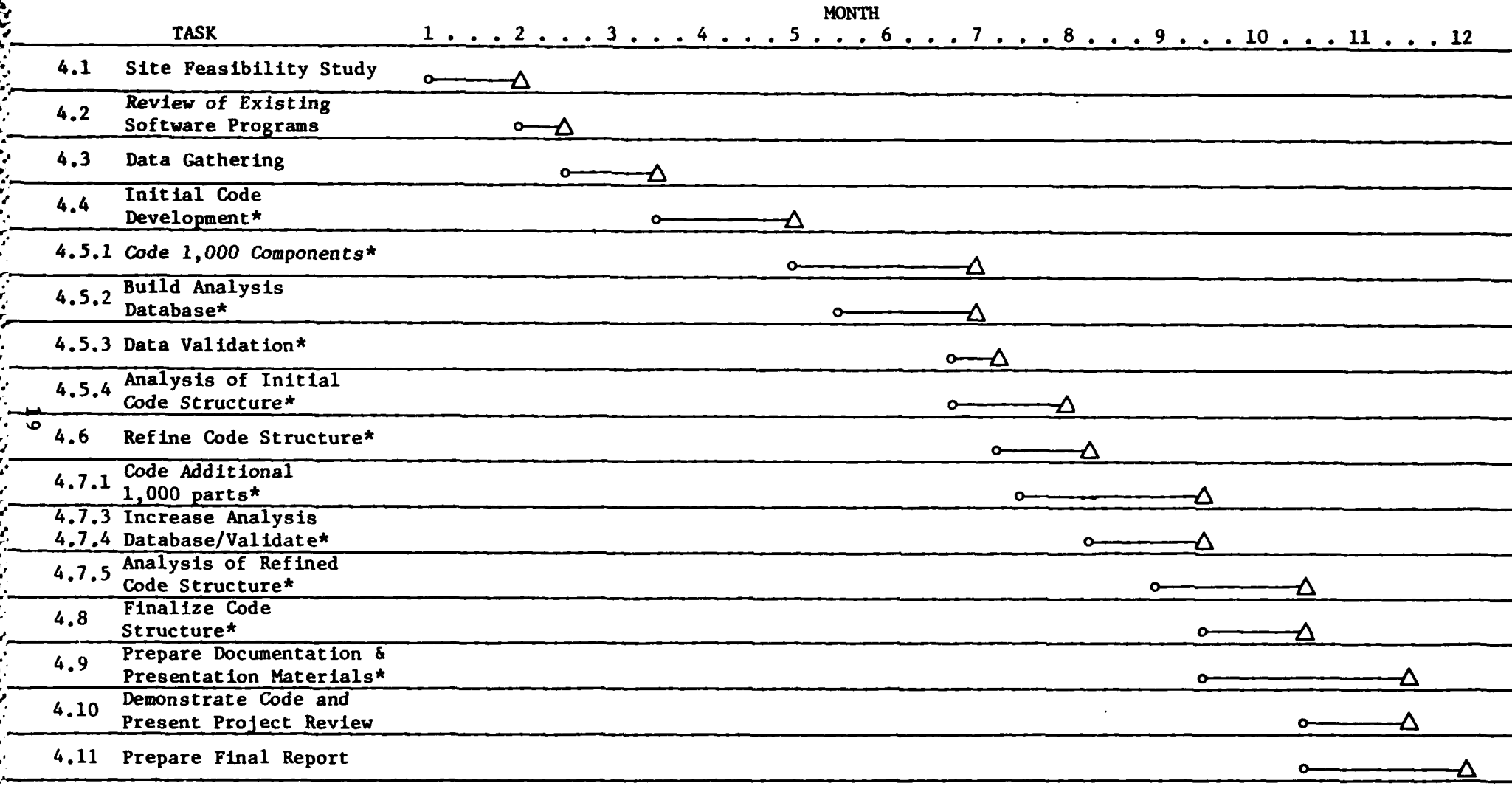
It is estimated that the development of an ECACS will require:

- 62 man weeks of effort by the prime contractor.
- 20 man weeks of effort by the test site contractor.

This contract should be completed within twelve months of the date of contract signing.

The following schedule estimates the project milestones by task.

ECACS Development Project Schedule



*Technical Review Meetings to conclude each major task

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10 — 86

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